

355 EKLLEFVTPNGKCLFKDKLKHYYVDFEKLADHFCTHAGRAVITYLEKLNLLAPIDVEA 414

301 SRSTLHRFGNTSSSIWELAYIEAKGRMKKGKWKWQIAUGSGFCNCNSAWVALNNVKAS 360

415 SRSTLHRFGNTSSSIWELAYIEAKGRMKKGKWKWQIAUGSGFCNCNSAWVALNNVKAS 474

Db 175 NTNVNPKDIGHVVNSMFMNTPSLSAMVNTFKLSNSVRSENLGNGCAGSAGVIAIDLAK 234

Qy 121 DLLHVHKNTYALVSTENITYNIYAGDRNSMMVSNCLFRVGGAAILISNKPGDRRSKYE 180

Db 235 DLLHVHKNTYALVSTENITYNIYAGDRNSMMVSNCLFRVGGAAILISNKPGDRRSKYE 294

Db 181 LHVTVRTHTGADGKSPRCVQGDDENGKIGVSLSKDTDVAGRIVTKVKNIATLGPLILPS 240

Qy 295 LHVTVRTHTGADGKSPRCVQGDDENGKIGVSLSKDTDVAGRIVTKVKNIATLGPLILPS 354

Qy 241 EKLLEFVTPMGKLFKDQKIKYYPDEKLAIDHCFTHAGRAVIDVLEKFNLTALAPIDVEA 300

Db 355 EKLLEFVTPMGKLFKDQKIKYYPDEKLAIDHCFTHAGRAVIDVLEKFNLTALAPIDVEA 414

Db 301 SRSTLHRFGNTSSSIWELAYIEAKGRMKKGKWKWQIAUGSGFCNCNSAWVALNNVKAS 360

Qy 301 SRSTLHRFGNTSSSIWELAYIEAKGRMKKGKWKWQIAUGSGFCNCNSAWVALNNVKAS 392

Db 415 SRSTLHRFGNTSSSIWELAYIEAKGRMKKGKWKWQIAUGSGFCNCNSAWVALNNVKAS 506

Qy 241 EKLLEFVTPMGKLFKDQKIKYYPDEKLAIDHCFTHAGRAVIDVLEKFNLTALAPIDVEA 300

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Sequence 14, Application US/09877476

Db 355 EKLLEFVTPMGKLFKDQKIKYYPDEKLAIDHCFTHAGRAVIDVLEKFNLTALAPIDVEA 414

Db 301 SRSTLHRFGNTSSSIWELAYIEAKGRMKKGKWKWQIAUGSGFCNCNSAWVALNNVKAS 360

Qy 301 SRSTLHRFGNTSSSIWELAYIEAKGRMKKGKWKWQIAUGSGFCNCNSAWVALNNVKAS 474

Db 415 SRSTLHRFGNTSSSIWELAYIEAKGRMKKGKWKWQIAUGSGFCNCNSAWVALNNVKAS 474

Qy 361 TNSPWEHCIDRYPVKIDSQGKSETRVQNGRS 392

Db 475 TNSPWEHCIDRYPVKIDSQGKSETRVQNGRS 505

RESULT 4

US-09-877-476-18

Sequence 18, Application US/09877476

Patent No. 6713664

GENERAL INFORMATION:

APPLICANT: Jaworski, Jan G.

ATTORNEY OR AGENT: Blacklock, Brenda J.

TITLE OF INVENTION: FATTY ACID ELONGASE 3-KETOACYL COA

FILE REFERENCE: 07148-108001

CURRENT APPLICATION NUMBER: US/09/877,476

PRIOR APPLICATION NUMBER: US 60/210,326

PRIOR FILING DATE: 2000-06-08

NUMBER OF SEQ ID NOS: 56

SOFTWARE: FastSEQ for Windows Version 4.0

SEQ ID NO 18

LENGTH: 505

TYPE: PRT

ORGANISM: Artificial Sequence

FEATURE:

OTHER INFORMATION: 5' 74 amino acids from A. thaliana FAE1 (SEQ ID NO:2) and 3' 431 amino acids from B. napus

OTHER INFORMATION: elongase KCS (SEQ ID NO:4) having a mutation at residue 306; designated At4 G306D; hypothetical

OTHER INFORMATION: residue 306; designated At4 G306D; hypothetical

US-09-877-476-18

Query Match 99.7% Score 2030; DB 2; Length 505;

Best Local Similarity 99.7%; Pred. No. 1..9e-209; Indels 0; Mismatches 1; Gaps 0

Matches 391; Conservative 0; Indels 0; Mismatches 1; Gaps 0

1 GTCDDSSWLDPLRKIQRERSGIGDETHGPEGILQVPRKTFAAARESTEBOVIGALENLFK 60

114 GTCDDSSWLDPLRKIQRERSGIGDETHGPEGILQVPRKTFAAARESTEBOVIGALENLFK 173

Qy 61 NTVNPKDIGHVVNSMFMNPFTSLSAMVNTFKRSNRVSFLNAGGCSAGVIAIDLAK 120

Db 174 NTVNPKDIGHVVNSMFMNPFTSLSAMVNTFKRSNRVSFLNAGGCSAGVIAIDLAK 233

Qy 121 DLLHVHKNTYALVSTENITYNIYAGDRNSMMVSNCLFRVGGAAILISNKPGDRRSKYE 180

Db 234 DLLHVHKNTYALVSTENITYNIYAGDRNSMMVSNCLFRVGGAAILISNKPGDRRSKYE 293

Qy 181 LVHTVRTHGADGKSPRCVQGDDENGKIGVSLSKDTDVAGRIVTKVKNIATLGPLILPS 240

Db 294 LVHTVRTHGADGKSPRCVQGDDENGKIGVSLSKDTDVAGRIVTKVKNIATLGPLILPS 353

Db 115 GTCDDSSWLDPLRKIQRERSGIGDETHGPEGILQVPRKTFAAARESTEBOVIGALENLFK 174

Qy 241 EKLLEFVTPMGKLFKDQKIKYYPDEKLAIDHCFTHAGRAVIDVLEKFNLTALAPIDVEA 300

Db 354 EKLLEFVTPMGKLFKDQKIKYYPDEKLAIDHCFTHAGRAVIDVLEKFNLTALAPIDVEA 413

Qy 1 1 GTCDDSSWLDPLRKIQRERSGIGDETHGPEGILQVPRKTFAAARESTEBOVIGALENLFK 60

Db 115 GTCDDSSWLDPLRKIQRERSGIGDETHGPEGILQVPRKTFAAARESTEBOVIGALENLFK 174

Qy 61 NTVNPKDIGHVVNSMFMNPFTSLSAMVNTFKRSNRVSFLNAGGCSAGVIAIDLAK 120

Db 175 NTVNPKDIGHVVNSMFMNPFTSLSAMVNTFKRSNRVSFLNAGGCSAGVIAIDLAK 234

Qy 121 DLLHVHKNTYALVSTENITYNIYAGDRNSMMVSNCLFRVGGAAILISNKPGDRRSKYE 180

Db 235 DLLHVHKNTYALVSTENITYNIYAGDRNSMMVSNCLFRVGGAAILISNKPGDRRSKYE 294

Qy 181 LHVTVRTHTGADGKSPRCVQGDDENGKIGVSLSKDTDVAGRIVTKVKNIATLGPLILPS 240

Db 295 LHVTVRTHTGADGKSPRCVQGDDENGKIGVSLSKDTDVAGRIVTKVKNIATLGPLILPS 354

RESULT 5

US-09-877-476-16

Qy

Best Local Similarity 99.7%; Pred. No. 1.9e-209; Matches 391; Conservative 0; Mismatches 1; Indels 0; Gaps 0;

QY 1 GTCDDSSWDLRKIQERSGIGDETHPEGQLQVPPRTFAAAREETEVQVIGALENLK 60
Db 115 GTCDDSSWDLRKIQERSGIGDETHPEGQLQVPPRTFAAAREETEVQVIGALENLK 174

QY 61 NTNNPKD1GILVNNSSMNPPTPSLSAMVNTFKLRSNVRSPNLLGMGCSAGVIAIDLAK 120
Db 175 NTNNPKD1GILVNNSSMNPPTPSLSAMVNTFKLRSNVRSPNLLGMGCSAGVIAIDLAK 234

QY 121 DLHRYHKTNTALVSTENITYIYAGDRNSMMVSNCLFRYGAAILLSNKGDPDRRSKYE 180
Db 235 DLHRYHKTNTALVSTENITYIYAGDRNSMMVSNCLFRYGAAILLSNKGDPDRRSKYE 294

QY 181 LVHTVRTHGADGKSFRCYQQGDDENGKIGVSLKDITDVAQRTVKNTATLGPLPLS 240
Db 295 LVHTVRTHGADGKSFRCYQQGDDENGKIGVSLKDITDVAQRTVKNTATLGPLPLS 354

QY 241 EKLIFEVTFMGKKLFDKIKHYYVPDFKLAIDHFCIHAGRAVIDVLEKONLALAPIDVEA 300
Db 355 EKLIFEVTFMGKKLFDKIKHYYVPDFKLAIDHFCIHAGRAVIDVLEKONLALAPIDVEA 414

QY 301 SRSTLHRFGNTSSSIIWELAYIEAKGRMKGKGNWQIAGSGPKCNSAVWVALNNVKAS 360
Db 415 SRSTLHRFGNTSSSIIWELAYIEAKGRMKGKGNWQIAGSGPKCNSAVWVALNNVKAS 474

QY 361 TNSPMEHCIDRYPVTKIDSQSKSETRVQNGRS 392
Db 475 TNSPMEHCIDRYPVTKIDSQSKSETRVQNGRS 506

RESULT 9 US-09-877-476-12
Sequence 8, Application US/09877476
Patent No. 6713664

GENERAL INFORMATION:
APPLICANT: Jaworski, Jan G.
TITLE OF INVENTION: FATTY ACID ELONGASE 3-KETOACYL COA
FILE REFERENCE: 07148-108001
CURRENT APPLICATION NUMBER: US/09/877,476
PRIORITY APPLICATION NUMBER: US 60/210,326
PRIOR FILING DATE: 2000-06-08
NUMBER OF SEQ ID NOS.: 56
SEQ ID NO: 12
SOFTWARE: FastSEQ for Windows Version 4.0
LENGTH: 506
TYPE: PRT
ORGANISM: Artificial Sequence
FEATURE:
OTHER INFORMATION: 5' 114 amino acids from A. thaliana FAE1 (SEQ ID NO:2) and 3' 392 amino acids from B. napus
OTHER INFORMATION: elongase KCS (SEQ ID NO:4) having mutations at residues 91 and 92; designated At14 L91c K92R
US-09-877-476-12

Query Match 99.5%; Score 2026; DB 2; Length 506;
Best Local Similarity 99.5%; Pred. No. 5.2e-209;
Matches 390; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 GTCDDSSWDLRKIQERSGLGDETHPEGQLQVPPRTFAAAREETEVQVIGALENLFK 60
Db 115 GTCDDSSWDLRKIQERSGLGDETHPEGQLQVPPRTFAAAREETEVQVIGALENLFK 174

QY 61 NTNNPKD1GILVNNSSMNPPTPSLSAMVNTFKLRSNVRSPNLLGMGCSAGVIAIDLAK 120
Db 175 NTNNPKD1GILVNNSSMNPPTPSLSAMVNTFKLRSNVRSPNLLGMGCSAGVIAIDLAK 234

QY 121 DLHRYHKTNTALVSTENITYIYAGDRNSMMVSNCLFRYGAAILLSNKGDPDRRSKYE 180
Db 235 DLHRYHKTNTALVSTENITYIYAGDRNSMMVSNCLFRYGAAILLSNKGDPDRRSKYE 294

QY 181 LVHTVRTHGADGKSFRCYQQGDDENGKIGVSLKDITDVAQRTVKNTATLGPLPLS 240
Db 295 LVHTVRTHGADGKSFRCYQQGDDENGKIGVSLKDITDVAQRTVKNTATLGPLPLS 354

QY 241 EKLIFEVTFMGKKLFDKIKHYYVPDFKLAIDHFCIHAGRAVIDVLEKONLALAPIDVEA 300
Db 355 EKLIFEVTFMGKKLFDKIKHYYVPDFKLAIDHFCIHAGRAVIDVLEKONLALAPIDVEA 414

QY 301 SRSTLHRFGNTSSSIIWELAYIEAKGRMKGKGNWQIAGSGPKCNSAVWVALNNVKAS 360
Db 415 SRSTLHRFGNTSSSIIWELAYIEAKGRMKGKGNWQIAGSGPKCNSAVWVALNNVKAS 474

QY 361 TNSPMEHCIDRYPVTKIDSQSKSETRVQNGRS 392
Db 475 TNSPMEHCIDRYPVTKIDSQSKSETRVQNGRS 506

RESULT 9 US-09-877-476-12
Sequence 8, Application US/09877476
Patent No. 6713664

GENERAL INFORMATION:
APPLICANT: Blacklock, Brenda J.
TITLE OF INVENTION: SYNTHASE POLYPEPTIDES
FILE REFERENCE: 07148-108001
CURRENT APPLICATION NUMBER: US/09/877,476
PRIORITY APPLICATION NUMBER: US 60/210,326
PRIOR FILING DATE: 2000-06-08
NUMBER OF SEQ ID NOS.: 56
SEQ ID NO: 12
SOFTWARE: FastSEQ for Windows Version 4.0
LENGTH: 506
TYPE: PRT
ORGANISM: Artificial Sequence
FEATURE:
OTHER INFORMATION: 5' 114 amino acids from A. thaliana FAE1 (SEQ ID NO:2) and 3' 392 amino acids from B. napus
OTHER INFORMATION: elongase KCS (SEQ ID NO:4) having mutations at residues 91 and 92; designated At14 L91c K92R
US-09-877-476-12

Query Match 99.5%; Score 2026; DB 2; Length 506;
Best Local Similarity 99.5%; Pred. No. 5.2e-209;
Matches 390; Conservative 1; Mismatches 1; Indels 0; Gaps 0;

QY 1 GTCDDSSWDLRKIQERSGLGDETHPEGQLQVPPRTFAAAREETEVQVIGALENLFK 60
Db 115 GTCDDSSWDLRKIQERSGLGDETHPEGQLQVPPRTFAAAREETEVQVIGALENLFK 174

QY 61 NTNNPKD1GILVNNSSMNPPTPSLSAMVNTFKLRSNVRSPNLLGMGCSAGVIAIDLAK 120
Db 175 NTNNPKD1GILVNNSSMNPPTPSLSAMVNTFKLRSNVRSPNLLGMGCSAGVIAIDLAK 234

QY 121 DLHRYHKTNTALVSTENITYIYAGDRNSMMVSNCLFRYGAAILLSNKGDPDRRSKYE 180
Db 235 DLHRYHKTNTALVSTENITYIYAGDRNSMMVSNCLFRYGAAILLSNKGDPDRRSKYE 294

QY 181 LVHTVRTHGADGKSFRCYQQGDDENGKIGVSLKDITDVAQRTVKNTATLGPLPLS 240
Db 295 LVHTVRTHGADGKSFRCYQQGDDENGKIGVSLKDITDVAQRTVKNTATLGPLPLS 354

QY 241 EKLIFEVTFMGKKLFDKIKHYYVPDFKLAIDHFCIHAGRAVIDVLEKONLALAPIDVEA 300
Db 355 EKLIFEVTFMGKKLFDKIKHYYVPDFKLAIDHFCIHAGRAVIDVLEKONLALAPIDVEA 414

QY 301 SRSTLHRFGNTSSSIIWELAYIEAKGRMKGKGNWQIAGSGPKCNSAVWVALNNVKAS 360
Db 415 SRSTLHRFGNTSSSIIWELAYIEAKGRMKGKGNWQIAGSGPKCNSAVWVALNNVKAS 474

415 SRSTLHRFGNTSSSIIWELAYIEAKGRMKKGKTYQIALGSGPKCNSAWVALNNVKS 474
 361 TNSPWPHECIDRYPVKIDSDSGKSETRVQNGRS 392
 475 TNSPWPHECIDRYPVKIDSDSGKSETRVQNGRS 506

LT 10
 9-877-476-20
 quence 20, Application US/09877476
 tient No. 6713664
 NERAL INFORMATION:
 APPLICANT: Jaworski, Jan G.
 TITLE OF INVENTION: FATTY ACID ELONGASE 3-KETOACYL COA
 CURRENT APPLICATION NUMBER: US/09/877,476
 CURRENT FILING DATE: 2001-06-08
 PRIORITY APPLICATION NUMBER: US 6/210,326
 PRIORITY FILING DATE: 2000-06-08
 NUMBER OF SEQ ID NOS: 56
 SOFTWARE: Fast-SEQ for Windows Version 4.0
 SEQ ID NO 6
 LENGTH: 505
 TYPE: PRT
 ORGANISM: Brassica napus
 US-09-877-476-6

GENERAL INFORMATION:
 APPLICANT: Jaworski, Jan G.
 TITLE OF INVENTION: FATTY ACID ELONGASE 3-KETOACYL COA
 FILE REFERENCE: 07148-108001
 CURRENT APPLICATION NUMBER: US/09/877,476
 CURRENT FILING DATE: 2001-06-08
 PRIORITY APPLICATION NUMBER: US 6/210,326
 PRIORITY FILING DATE: 2000-06-08
 NUMBER OF SEQ ID NOS: 56
 SOFTWARE: Fast-SEQ for Windows Version 4.0
 SEQ ID NO 6
 LENGTH: 505
 TYPE: PRT
 ORGANISM: Brassica napus
 US-09-877-476-6

Query Match Score 97.5%; Score 1986; DB 2; Length 505;
 Best Local Similarity 97.4%; Pred. No. 1.1e-204;
 Matches 382; Conservative 3; Mismatches 7; Indels 0; Gaps 0;

1 GTCDDSSWDLFLRKIQLERSGIGDETHGPEGILQVPKRTEQAARBEETEQVITGALLENFK 60
 114 GTCDDSSWDLFLRKIQLERSGIGDETHGPEGILQVPKRTEQAARBEETEQVITGALLENFK 173

Qy 61 NTVNVPKDIGILVQNSMENPTPSLSAMVNTFKLRSNVRSPNLFGMGCSAGVIAIDLAK 120
 Qy 174 NTVNVPKDIGILVQNSMENPTPSLSAMVNTFKLRSNVRSPNLFGMGCSAGVIAIDLAK 233

Db 121 DLLEHVKNTALVVSTENITYIYAGDNRSMMSVNLFRYGAATLLSNKPGRRSKYE 180
 Db 234 DLLEHVKNTALVVSTENITYIYGDNRSMMSVNLFRYGAATLLSNKPGRRSKYE 293

Qy 181 LVHTVTHRHTGADGKSPRCYQOGDENGKIGVSLSDTIDYAGRTRVKNIATGLPLPLS 240
 Qy 294 LVHTVTHRHTGADGKSPRCYQOGDENGQIGVSLSDTIDYAGRTRVKNIATGLPLPLS 353

Db 241 EKLLFFYTFTMCKLKFDKIKHYVPDPFLKIDHFCITHAGGRAVIDYLEKNLALAPIDVEA 300
 Db 354 EKLLFFYTFTMCKLKFDKIKHYVPDPFLKIDHFCITHAGGRAVIDYLEKNLALAPIDVEA 413

1 GTCDDSSWDLFLRKIQLERSGIGDETHGPEGILQVPKRTEQAARBEETEQVITGALLENFK 60
 115 GTCDDSSWDLFLRKIQLERSGIGDETHGPEGILQVPKRTEQAARBEETEQVITGALLENFK 174

61 NTVNVPKDIGILVQNSMENPTPSLSAMVNTFKLRSNVRSPNLFGMGCSAGVIAIDLAK 120
 175 NTVNVPKDIGILVQNSMENPTPSLSAMVNTFKLRSNVRSPNLFGMGCSAGVIAIDLAK 234

121 DLLEHVKNTALVVSTENITYIYGDNRSMMSVNLFRYGAATLLSNKPGRRSKYE 180
 235 DLLEHVKNTALVVSTENITYIYGDNRSMMSVNLFRYGAATLLSNKPGRRSKYE 294

181 LVHTVTHRHTGADGKSPRCYQOGDENGKIGVSLSDTIDYAGRTRVKNIATGLPLPLS 240
 295 LVHTVTHRHTGADGKSPRCYQOGDENGQIGVSLSDTIDYAGRTRVKNIATGLPLPLS 354

241 EKLLFFYTFTMCKLKFDKIKHYVPDPFLKIDHFCITHAGGRAVIDYLEKNLALAPIDVEA 300
 355 EKLLFFYTFTMCKLKFDKIKHYVPDPFLKIDHFCITHAGGRAVIDYLEKNLALAPIDVEA 414

301 SRSTLHRFGNTSSSIWELAYIEAKGRMKKGKTYQIALGSGPKCNSAWVALNNVKS 360
 415 SRSTLHRFGNTSSSIWELAYIEAKGRMKKGKTYQIALGSGPKCNSAWVALNNVKS 474

361 TNSPWEHCIDRYPVKIDSDSGKSETRVQNGRS 392
 475 TNSPWEHCIDRYPVKIDSDSGKSETRVQNGRS 506

RESULT 12
 US-09-877-476-32
 Sequence 32, Application US/09877476
 Patent No. 6713664
 GENERAL INFORMATION:
 APPLICANT: Jaworski, Jan G.
 TITLE OF INVENTION: FATTY ACID ELONGASE 3-KETOACYL COA
 FILE REFERENCE: 07148-108001
 CURRENT APPLICATION NUMBER: US/09/877,476
 CURRENT FILING DATE: 2001-06-08
 PRIORITY APPLICATION NUMBER: US 6/210,326
 PRIORITY FILING DATE: 2000-06-08
 NUMBER OF SEQ ID NOS: 56
 SOFTWARE: Fast-SEQ for Windows Version 4.0
 SEQ ID NO 32
 LENGTH: 505
 TYPE: PRT
 ORGANISM: Artificial Sequence
 FEATURE:
 OTHER INFORMATION: 5' 399 amino acids from B. napus elongase KCS (SEQ